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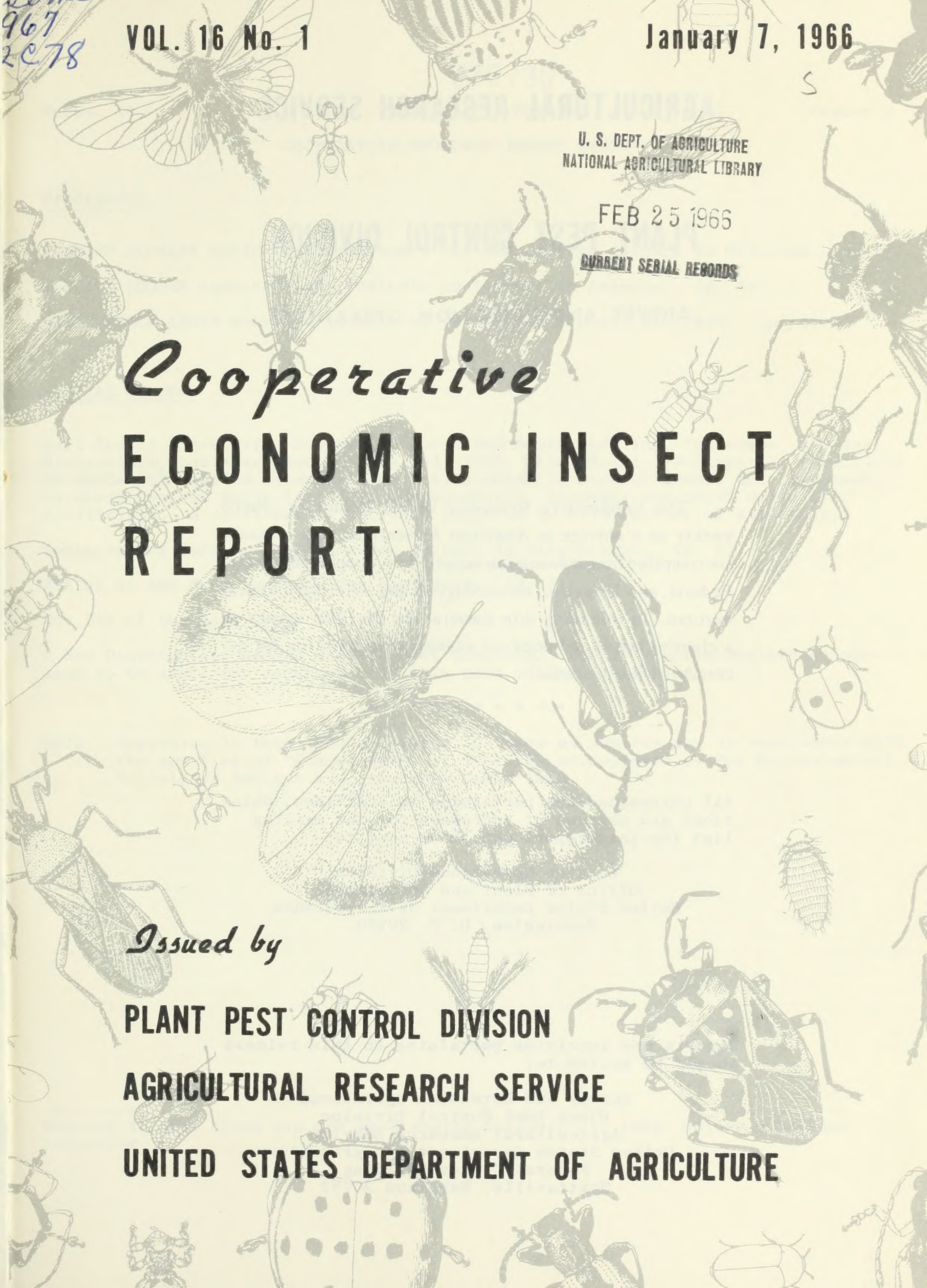

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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United States Department of Agriculture
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Hyattsville, Maryland 20782

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Volume 16 January 7, 1966 Number 1

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

SPOTTED ALFALFA APHID continues heavy and damaging to alfalfa in Oklahoma. (p. 3).

CABBAGE LOOPER required some controls on lettuce in Arizona. (p. 4).

GREEN PEACH APHID heavy on spinach in Dorchester County, Maryland. (p. 4).

SPECIAL REPORTS

Boll Weevil Hibernation Surveys in North and South Carolina, Tennessee, Alabama, Mississippi, Louisiana and Texas - Fall 1965. (pp. 9-12). Substantial reductions in number of weevils entering hibernation noted in several areas, but increased in north central North Carolina; Morgan County, Alabama; and north delta of Mississippi. A considerable increase occurred in hill section of Mississippi.

Southwestern Corn Borer Population Surveys in Mississippi. (p. 8).

Status of the Screw-worm in the Southwest. (p. 7).

The Use of the Name _Udea_. (p. 5).

A New Distribution Record for the Beet Armyworm. (p. 5). Entomologists encouraged to be alert for occurrence of this pest in Eastern States.

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NOTE: Beginning in this issue, changes in names of insects are in accordance with the new list of "Common Names of Insects" as approved by The Entomological Society of America and issued December 1965.

Reports in this issue are for week ending December 31, 1965, unless otherwise indicated.

WEATHER BUREAU'S 30-DAY OUTLOOK

JANUARY 1966

The Weather Bureau's 30-day outlook for January calls for temperatures to average above seasonal normals across the southern half of the Nation except for near normal in California and in South Atlantic Coastal States. Below normal averages are expected in the northern border States from the west coast to the western Great Lakes and also in New England. Near normal temperatures are indicated in unspecified areas. Precipitation is expected to exceed normal over most areas west of the Continental Divide, as well as over the northern Plains and the upper Mississippi Valley. Subnormal precipitation totals are called for over the South including the southern Plains, while near normal precipitation is in prospect in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through the Superintendent of Documents, Washington, D. C. 20250. Price $5.00 a year.

WEATHER OF THE WEEK ENDING JANUARY 3

Highlights: (1) End of 1965 mild in most areas but cold week in Montana-North Dakota zone. (2) Heavy precipitation West Coast and lower Ohio Valley area. (3) Two major storms, Great Lakes area.

TEMPERATURE: Most areas from the central and southern Rockies eastward averaged 6° to 12° above normal. The west coast was cool while frigid Arctic air over northeastern Montana and parts of North Dakota held weekly average temperatures at 6° to 16° below normal. Two deep Lows moving northeastward through the Minnesota-Wisconsin area on Friday and Sunday brought strong warming to the Mississippi Valley and eastward. Temperatures reached the 60's in Iowa on December 30 and along the Lake Erie and Lake Ontario shores on December 31. On January 1 and 2, cool air swept southeastward to the gulf and Georgia coasts, but still left weekly means well above normal.

PRECIPITATION: Amounts were insignificant from South Dakota southward to western Texas and from northern Florida to the Carolina coast. Two to four inches fell on most of the west coast including Los Angeles where more than 4 inches caused additional damage by mudslides and washouts in northern sections. In Arizona, this was the 4th consecutive week of substantial to heavy precipitation as rain and melting snow caused flooding of the Gila and Salt Rivers. Early damage estimates were well over $1 million. Moderate precipitation in most western mountains added to the snowpack and in the Cascades snow depths ranged up to 100 inches above 4,000 feet. Substantial rains came to the Mississippi and Ohio Valleys with more than 4 inches from northern Arkansas to southern Indiana. The Northeast received helpful rains. Although snowfall and snow cover were above the usual in much of the western third, areas east of the Rockies were generally deficient. Near blizzards occurred in Idaho and parts of Montana and Wyoming. Snow cover increased in the extreme northern Plains and the Lake Superior region continued to have above normal amounts. However, from South Dakota and Iowa southward and eastward, snow was notable for its lack in early January. Even mountain areas had very little snow from Pennsylvania southward. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum) - OKLAHOMA - Counts per linear foot ranged 1-25 in wheat checked in Noble, Garfield, Major and Logan Counties; 5-12 in wheat and oats in Tillman County; 6-40 per linear foot in wheat in Carter and Marshall Counties. Reported light to moderate in Cleveland County. (Okla. Coop. Sur.). ARKANSAS - First specimens of season noted during past 10 days in northwest; numbers relatively low. (Ark. Ins. Sur., Dec. 24).

GRAIN APHIDS - OKLAHOMA - Rhopalosiphum maidis present in most fields in Noble, Garfield, Major and Logan Counties; 2-60 per linear foot. Most common aphid reported in wheat this period. R. padi present in most fields checked in Noble, Garfield, Major and Logan Counties; 1-60 per linear foot. (Okla. Coop. Sur.). ARKANSAS - Macrosiphum avenae numbers very low. (Ark. Ins. Sur., Dec. 24).

A BERMUDAGRASS MITE (Aceria neocynodonis) - OKLAHOMA - Heavy on Bermuda grass in greenhouse in Stillwater, Payne County. Infested grass recently brought in from unspecified location. (Okla. Coop. Sur.).

PEA APHID (Acyrthosiphon pisum) - NEW MEXICO - Light in alfalfa near Lovington, Lea County, and at Carlsbad, Eddy County. (Kloepfer). OKLAHOMA - Moderate in Cleveland County alfalfa. (Okla. Coop. Sur.). ARKANSAS - Active but relatively low. (Ark. Ins. Sur., Dec. 24).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Continues heavy and damaging alfalfa in Lincoln County. (Okla. Coop. Sur.). ARKANSAS - Numbers continue low. (Ark. Ins. Sur., Dec. 24).

FALSE CELERY LEAF TIER (Udea profundalis*) - CALIFORNIA - Larvae increasing in alfalfa. Species adapting to alfalfa. (Calif. Crop and Livestock Rpt. Serv.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Numbers decreased in Yuma County alfalfa. (Ariz. Coop. Sur.).

FRUIT INSECTS

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Increasing problem on peach trees at Gainesville, Alachua County, and in Monticello area, Jefferson County. (Phillips).

MEXICAN FRUIT FLY (Anastrepha ludens) - Prior to 1964, repeated pesticide applications were made along the Mexico-California border to keep A. ludens from becoming established in California and Baja California, Mexico. In 1964, a sterile male release technique developed by ARS scientists eliminated the need for the annual chemical control program. The flies are reared at the ARS laboratory at Mexico City and sterilized by immersing the pupae in a chemosterilant solution. Plant Pest Control personnel release only the sterilized adult males. Prior to release, they are permanently marked with a colored lacquer to make it possible to distinguish them from the wild male flies. Traps are employed throughout the release areas to determine overflooding ratios. To date, releases have been made in three areas, Tijuana, Ensenada and Tecate, Mexico. (PPC). No native or sterile marked A. ludens were trapped in Baja California during the period December 26, 1965, to January 1, 1966. Last native A. ludens trapped in Baja California October 26, 1965; last release of sterile male flies made November 17, 1965. It is felt that this season's sterile release program in Baja California, concluded in November 1965, was entirely successful in ridding the area of all introduced or incipient infestations of A. ludens. (PPC Mex. Reg.)

PECAN CARPENTERWORM (Cossula magnifica) - ALABAMA - Numerous tunnels and several larvae noted in intertrunk area of 30-40 year-old pecan trees cut in Lee County. (McQueen).

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* See statement on page 5, this issue.

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Counts high enough for controls in some lettuce fields. (Ariz. Coop. Sur.).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Medium in tomato plantings at Fresno, Fresno County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Heavy over 200 acres of spinach near Vienna, Dorchester County. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Nymphs and adults injuring wrapper lettuce leaves in Yuma area, Yuma County. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - VIRGINIA - Two new infestations reported in Charlottesville District. Damage noted in numerous spots in Nottoway, Prince Edward, Buckingham, Amelia and Lunenburg Counties; few spots noted in Charlotte and Appomattox Counties. Damage to Virginia and shortleaf pines noted in Campbell County tract. (Va. Div. For., Nov. Rpt.).

BARK BEETLES (Dendroctonus spp.) - VIRGINIA - Recorded on 2 tracts of shortleaf pine in Mecklenburg County. Noted in shortleaf, Virginia and white pine in single locations in Campbell, Franklin and Patrick Counties. (Va. Div. For., Nov. Rpt.).

WHITE-PINE WEEVIL (Pissodes strobi) - VIRGINIA - Damage evident on 4-acre pine planting in Greene County. (Va. Div. For., Nov. Rpt.).

WHITE-PINE APHID (Cinara strobi) - MARYLAND - Eggs and some live individuals observed on white pine at College Park, Prince Georges County. (U. Md., Ent. Dept.).

A CONIFER APHID (Cinara tujafilina) - OKLAHOMA - Continues heavy in many areas. (Okla. Coop. Sur.).

COCCIDS - FLORIDA - Ceroplastes floridensis severely damaging 20 of 100 pyracantha in nursery at Macclenny, Baker County. (Collins, Dec. 17). CALIFORNIA - Aspidiotus camelliae locally heavy on pachysandra and euonymus in Napa, Napa County. (Cal. Coop. Rpt.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae locally heavy on dichondra at Davis, Yolo County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Larval collections by Jefferson Parish Department of Mosquito Control during period contained Aedes sollicitans, Aedes vexans, Culex pipiens quinquefasciatus, Culex restuans, Culex salinarius and Culiseta inornata. Culex salinarius and Culiseta inornata were predominant in light trap collections. (Stokes).

BOT FLIES (Gasterophilus spp.) - OKLAHOMA - Large numbers of larvae present in horses treated in Noble County. (Okla. Coop. Sur.).

CHICKEN BODY LOUSE (Menacanthus stramineus) - ARKANSAS - Heavier than normal in northwest section (Ark. Ins. Sur.).

STORED-PRODUCT INSECTS

RICE WEEVIL (Sitophilus oryzae)- ALABAMA - This species and Sitotroga cerealella widespread in corn entering storage on farms in Morgan County. (McQueen).

POTATO TUBERWORM (Phthorimaea operculella) - VIRGINIA - Larvae and pupae present in most stored potatoes at Spotsylvania County location. Few adults observed. (Isakson, Dec. 22). See CEIR 15(48):1294 for new genus designation.

MISCELLANEOUS INSECTS

OLEANDER SCALE (Aspidiotus hederae) - FLORIDA - All stages heavily infesting stems, leaves and fruit in some areas of a Monticello tung orchard. (Miller, Dillon, Dec. 14).

The Use of the Name Udea

Opinion 536 of the International Commission on Zoological Nomenclature states that the name Oeobia Hübner is suppressed under the Plenary Powers for the purposes of the Law of Priority but not for the Law of Homonymy. Therefore, we shall use the generic name Udea Guenée instead of Oeobia.

Ronald W. Hodges
Entomology Research Division
Agricultural Research Service
U.S. Department of Agriculture
Washington, D.C.

A New Distribution Record for the Beet Armyworm, Spodoptera exigua (Hübner). (Lepidoptera: Noctuidae)

Larvae of Spodoptera exigua (Hübner) were collected by Gilberto Gallo on cotton leaves in La Calera, Managua, Nicaragua, on September 17 and 22, 1965. The reared adults were sent to me for identification by Alvaro Sequeira D., Head of Pestes Agricolas Department MAG., Ministerio de Agricultura y Ganaderia, Managua, Nicaragua. To my knowledge the species was not previously known to occur south of Mexico and this collection is a new record for Nicaragua and indicates that the species is extending its range to the south. In the United States the species has spread eastward and has reached Florida and Ohio in recent years. Entomologists in South and North Carolina should watch for the species to move northward from Georgia. A larva from Geranium cuttings from a greenhouse in Clayton, New Jersey, was identified as this species in 1962 by Mr. Hahn Capps, but to my knowledge there are no records of this species occurring in the wild in that State.

E. L. Todd
Entomology Research Division
Agricultural Research Service
U.S. Department of Agriculture
Washington, D.C.

LIGHT TRAP COLLECTIONS

	Temperature °F.	Precipitation (inches)	Type of trap BL = blacklight I = incandescent MV = mercury vapor O = other	Agrotis ipsilon (black cutworm)	Carpocapsa pomonella (codling moth)	Chorizagrotis auxiliaris (army cutworm)	Estigmene acrea (salt-marsh caterpillar)	Faronta diffusa (wheat head armyworm)	Feltia subterranea (granulate cutworm)	Heliothis virescens (tobacco budworm)	H. zea (bollworm, corn earworm, tomato fruitworm)	Loxostege commixtalis (alfalfa webworm)	Loxostege similalis (garden webworm)	Loxostege sticticalis (beet webworm)	Ostrinia nubilalis (European corn borer)	Peridroma saucia (variegated cutworm)	Prodenia ornithogalli (yellow-striped armyworm)	Manduca quinquemaculata (tomato hornworm)	Manduca sexta (tobacco hornworm)	Pseudaletia unipuncta (armyworm)	Spodoptera exigua (beet armyworm)	Spodoptera frugiperda (fall armyworm)	Trichoplusia ni (cabbage looper)	Crops
FLORIDA Gainesville 12/28			BL						2								1							
GEORGIA Tifton 12/22-29	32-68	0.10	BL							0	0							0	0					
SOUTH CAROLINA Charleston 12/20-26	32-68	0.03	BL	7			0		4	0	0					0	0	0	0	4		0	0	

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period December 26, 1965, to January 1, 1966, a total of 3 cases was reported in the Southwestern Eradication Area; 1 each from Webb, Starr and Hidalgo Counties, TEXAS. The Republic of Mexico reported 48 cases as follows by State: Nuevo Leon 1, Chihuahua 2, Sonora 3, Tamaulipas 38, Territorio sur de Baja California 4. Sterile screw-worm flies released: Texas 21,238,250, New Mexico 1,280,000, Arizona 7,680,000, Mexico 48,500,800.

	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
Year	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1. Comparison of specimens reported during corresponding week in 1964 and 1965 in Southwestern Eradication Area. (1966 area figures include cases reported from Arizona and/or California; 1965 figures reflect those from the 5-State area).						
1964	0	0	16	16	0.00	0.00
1965	0	0	45	45	0.00	0.00
1966	3	3	23	23	13.04	13.04
Table 2. Comparison of specimens reported during corresponding week and in a corresponding area in 1965 in the United States-Mexico Barrier Zone.*						
1965	49	49	14	14	350.00	350.00
1966	51	51	19	19	268.42	268.42

Feasibility Survey - During this period 187 cases were identified in Mexico south of the Barrier Zone as follows: Chiapas 6, Morelos 19, Durango 1, Puebla 8, Zacatecas 8, Jalisco 4, Nayarit 4, Guerrero 8, Hidalgo 1, Michoacan 6, Veracruz 40, San Luis Potosi 3, Oaxaca 7, Sinaloa 8, Guanajuato 5, Yucatan 49.

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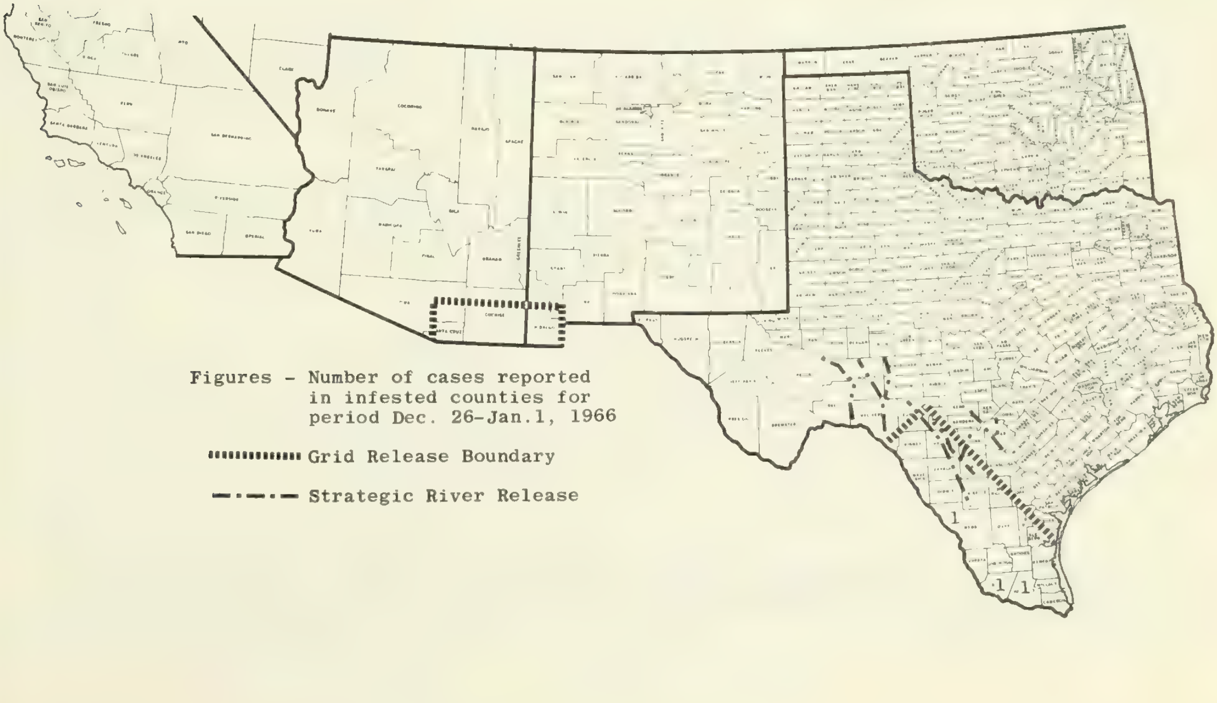
* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of self-sustaining screw-worm populations in the United States. (Anim. Health Div.).



Figures - Number of cases reported in infested counties for period Dec. 26-Jan.1, 1966

▮▮▮▮▮▮▮▮▮▮ Grid Release Boundary

—·—·— Strategic River Release

Southwestern Corn Borer Population Surveys in Mississippi

C. A. Henderson and W. A. Douglas [1]

Southwestern corn borer (*Zeadiatraea grandiosella* (Dyar)) population surveys were conducted in April each year from 1962 to 1965. The purpose of these surveys was to determine the borer potential at the beginning of the corn growing season.

The corn fields surveyed contained undisturbed stalks or stubble from the previous year's crop. Approximately 1/100 acre per field taken at 5 locations constituted the size of the sampled area.

Procedure and Results: All the stalks at each sample site were dug or pulled up, split with a knife and examined for southwestern corn borer larvae. Table 1 gives the number of fields surveyed, the live and dead borer forms and percentage of winter survival.

Table 1. Southwestern corn borer survey in northwest Mississippi in April 1962 to 1965.

Year	No. fields surveyed	Number of borer forms per acre			Percent winter survival
		Larvae		Live pupae	
		Live	Dead		
1962	18	900	900	11	50.3
1963	8	188	450	12	30.8
1964	19	863	800	0	51.9
1965	29	376	690	0	35.3
Average	18.5	581.7	710.0	5.8	42.1

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[1] Entomology Research Division, Agricultural Research Service, USDA, State College, Mississippi. In cooperation with the Mississippi Agricultural Experiment Station.

Boll Weevil Hibernation Surveys in North and South Carolina, Tennessee, Alabama, Mississippi, Louisiana and Texas - Fall 1965

The fall collections of surface ground (woods) trash samples (two square yards per sample) have been completed in 7 Southern States by State and Federal agencies to determine the number of boll weevil (Anthonomus grandis) adults that went into hibernation. A total of 3 samples was collected at each location in the Carolinas, Alabama, Mississippi, Louisiana and Texas; 20 samples were taken in McNairy County, Tennessee. In North and South Carolina, 30 locations were sampled in each area, with the number of counties per area from which samples were taken varying from 3 to 6. In Alabama, the 1965 collections represent the second hibernation survey conducted in that State in recent years. Three samples were taken from each of 10 farms in Morgan (north), 10 farms in Henry (southeast), 4 farms in Dallas (central) and 4 farms in Tuscaloosa (west) Counties. These 4 counties represent a wide variation of climatic conditions within the State. A total of 84 samples was taken. In Bibb County, Alabama, not included in the 1964 survey, 6 samples were taken from 2 farms. In Mississippi, collections have been made in 4 counties in each of 4 areas of the State from the fall of 1956 through the fall of 1964; however, beginning with the 1965 fall survey, collections will be made in only 2 counties in each of the 4 areas. It is anticipated that the number of samples collected in the reduced survey will continue to provide very good information on the status of boll weevil hibernation in all parts of the State. A total of 40 locations was sampled in northeastern Louisiana; 10 each in Tensas and East Carroll Parishes and 20 in Madison Parish. In Texas, 75 samples were taken, with either 6 or 7 locations being sampled in each of 4 counties.

Average counts (live weevils per acre) exceeded those of the fall of 1964 in the Coastal Plain of South and North Carolina; north central North Carolina; McNairy County, Tennessee; Morgan County, Alabama; and in the South Delta, North Delta and Hill Section areas of Mississippi. Counts were approximately the same in central Texas as they were in 1964, and lower in all other areas included in the survey except in the Piedmont of North and South Carolina which was not included in the 1964 survey.

In Florence County, South Carolina, the number of weevils per acre (17,754) is one of the highest on record and is 2.3 times the average for the 23 years that such examinations have been made. This is the sixth consecutive year in which over 10,000 weevils per acre have been found during fall examinations in this county.

In Tennessee, McNairy County was chosen for the survey in that State because it usually represents the heaviest infestations found in the southern tier of counties. The other southern counties usually support only slightly lower infestations than McNairy County. The number of weevils per acre was 1,211 compared with 807 in 1964, 1,089 in 1963, 3,633 in 1962 and 3,025 in 1961.

In Alabama, the State average of 4,037 weevils entering hibernation in 1965 is slightly lower than the average of 4,596 for 1964 (Bibb County not included in State average); however, it is significant that the number of weevils entering hibernation in Morgan County (the most northern sampling area) was approximately 3 times as heavy as in 1964. Sample collections in Henry County were made in November prior to a killing frost and cotton in the fields was heavily infested with live weevils. This may account for lower numbers being found in these samples; however, lower numbers are usually found in fall surface trash counts in the extreme southern portion of the State compared with the central area.

In Mississippi, the State average was 7,325 live weevils per acre found in ground trash examinations, compared with 4,545 in 1964, 3,010 in 1963, 6,213 in 1962 and 8,403 in 1961.

The average number of boll weevils per acre in the tri-parish area of northeast Louisiana was 3,349 compared with 5,874 in 1964. The average by parish was 2,017 in Madison, 8,312 in East Carroll and 1,049 in Tensas. During the past 11 falls that these records have been made in the tri-parish area, the number of weevils per acre has ranged from 2,017 to 13,442 and averaged 5,506 in Madison Parish; 5,165 to 13,235 and averaged 8,806 in East Carroll Parish; and 0 to 17,593 and averaged 6,397 in Tensas Parish. During the past 30 years that similar records have been made in Madison Parish, there have been only 7 years in which fewer weevils per acre have been found than the 2,017 found in 1965. Frost occurred the last 7 days of October with a low of 29 degrees being recorded on October 25. Because of dry weather throughout the summer and fall, the stalks in most fields near trash collecting areas had been destroyed and in some instances plowed under. The trash collected was very dry and was ideal for running through separating screens.

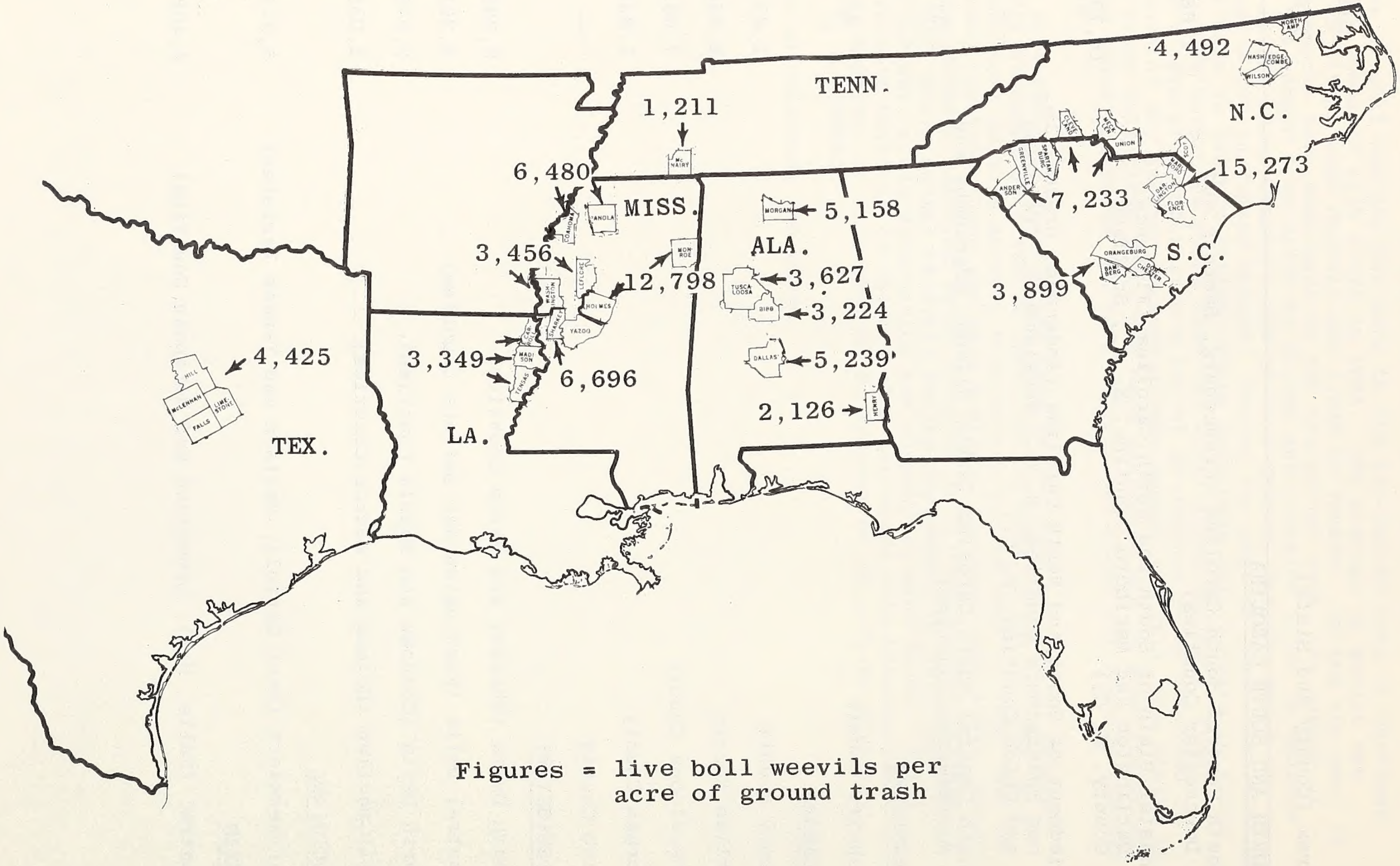
The area average of 4,425 boll weevils per acre in the fall of 1965 in central Texas compares with averages of 4,406 in 1964, 517 in 1963, 1,781 in 1962, and 4,114 in 1961. More boll weevils entered hibernation in the fall of 1965 than in any year since 1960; however, there was only a slight increase over 1964. Heavy rains in the spring delayed planting which resulted in a considerable acreage of late-planted cotton. Above normal rainfall during September, October and November delayed harvest, stalk destruction and cleanup on many farms. Heavy infestations of weevils built up in these fields and moved into hibernation. (H. M. Taft, A. R. Hopkins, J. H. Locke, H. F. McQueen et al., T. R. Pfrimmer, T. C. Cleveland, C. B. Cowan).

See table and map on following two pages.

BOLL WEEVIL HIBERNATION SURVEYS - FALL 1965

Area (County and State)	Number of Weevils Per Acre	
	1964	1965
NORTH AND SOUTH CAROLINA		
South Central South Carolina (Orangeburg, Bamberg and Dorchester Counties)	7,663	3,899
Coastal Plain of South and North Carolina (Florence, Darlington and Marlboro Counties, S. C.; Scotland County, N. C.)	15,192	15,273
Piedmont of South and North Carolina (Anderson, Greenville, and Spartanburg Counties, S. C.; Mecklenburg, Cleveland and Union Counties, N. C.)	---	7,233
North Central North Carolina (Nash, Wilson, Edgecombe and Northampton Counties)	3,315	4,492
TENNESSEE		
McNairy County	807	1,211
ALABAMA		
Henry County	2,821	2,126
Dallas County	6,650	5,239
Tuscaloosa County	7,061	3,627
Morgan County	1,854	5,158
Bibb County	---	3,224
MISSISSIPPI		
South Delta (Sharkey and Yazoo Counties)	6,236	6,696
Central Delta (Washington and Leflore Counties)	5,361	3,456
North Delta (Coahoma and Panola Counties)	3,546	6,480
Hill Section (Holmes and Monroe Counties)	3,036	12,798
LOUISIANA		
Northeastern (East Carroll, Madison and Tensas Parishes)	5,875	3,349
TEXAS		
Central (Falls, Hill, Limestone and McLennan Counties)	4,406	4,425

BOLL WEEVIL HIBERNATION SURVEYS - FALL 1965



Figures = live boll weevils per
acre of ground trash

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

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